

REMARKS

Claims 32, 34, and 36-50 are currently pending in the instant application. By way of the present response, Applicants have amended claims 32, 34, and 36-46. No claims have been cancelled. New claims 47-50 have been added. No new matter has been added. Applicants respectfully request reconsideration of the present application and the allowance of all claims now presented.

35 U.S.C. § 102 Rejections

The Examiner has rejected claims 32, 34, 36, 37, 40 and 41 under 35 U.S.C. § 102(b) as being anticipated by EP 0905747. The basis of the rejection of claims 32 and 37 are conclusive in nature and state that the entire document, especially parts [007]-[017] and [024]-[031], disclose the claimed steps in the claimed order. Applicant requests that the Examiner provide a clear specific citing in the reference for each claimed element.

Applicant respectfully asserts that amended claims 32 and 37 are not anticipated by EP 0905747 under 35 USC 102(e). The issue is that to anticipate a claim, the reference must teach, either expressly or inherently, each and every limitation as set forth in the claim, in a single prior art reference. (MPEP 2131.)

Claim 32, as amended, states a method of cleaning a wafer comprising: spinning a wafer having a frontside and a backside; exposing said frontside of said spinning wafer to an etchant or cleaning chemicals; **after exposing said wafer to said etchant or cleaning chemical and prior to dispensing DeIonized (DI) water on said etchant or cleaning chemical covered wafer exposing said frontside of said spinning**

wafer to a liquid or vapor having a lower surface tension than water; and after exposing said wafer to said liquid or vapor having a lower surface tension than water, rinsing said frontside of said wafer with DI water.

In contrast, EP 0905747, fails to disclose or suggest applying a liquid or vapor having a lower surface tension than water; after exposing said wafer to said etchant or cleaning chemical and prior to dispensing DeIonized (DI) water; and then rinsing said frontside of said wafer with DI water. EP 0905747 does not disclose that the vapor has a surface tension lower than water, but rather that it lowers the surface tension of the liquid, which is not equivalent. In fact, EP 0905747 teaches away from claim 32. See paragraph [0009], which discloses applying a liquid and then a gaseous substance, which when mixed with the liquid lowers the surface tension, which results in a surface that is **clean and dry**. Therefore, there would be no motivation to include a final step to apply DI water to a wafer, which is already clean and dry. Clearly, EP 0905747 finishes the process without a final DI water step and for the above reasons fails to disclose or suggest each and every limitation claimed, and thus cannot anticipate claim 32. Similarly, claim 37 is also not anticipated by EP 0905747.

In view of the above remarks, a specific discussion of the dependent claims is considered to be unnecessary. Therefore, Applicants' silence regarding any dependent claim is not to be interpreted as agreement with, or acquiescence to, the rejection of such claim or as waiving any argument regarding that claim.

Applicant, accordingly, respectfully requests withdrawal of the rejections of claims 32, 34, 36, 37, 40 and 41 under 35 U.S.C. § 102(b) as being anticipated by EP 0905747.

The Examiner has rejected claims 32, 34, 36, 37, 40 and 41 under 35 U.S.C. § 102(e) as being anticipated by Mertens et al., US Patent No. 6,491,764, ("Mertens") EP 0905747 and Mertens appear to be related patents in the same patent family, sharing a similar specification. In view of the above remarks, similar remarks may be applied to Mertens and claims 32 and 37. Further, in view of the above remarks, a specific discussion of the dependent claims is considered to be unnecessary. Therefore, Applicants' silence regarding any dependent claim is not to be interpreted as agreement with, or acquiescence to, the rejection of such claim or as waiving any argument regarding that claim. Nonetheless, the following remarks regarding the Examiner's rejections and the amended claims may be helpful to expedite prosecution. Mertens, as well as EP 0905747, fail to disclose or suggest applying **sonic energy** onto the **backside of the wafer**, but instead teach away from claims 34, 36, and 40, by disclosing the application of **megasonic energy** onto the **frontside of the wafer**.

Applicant, accordingly, respectfully requests withdrawal of the rejections of claims 32, 34, 36, 37, 40 and 41 under 35 U.S.C. § 102(e) as being anticipated by Mertens.

The Examiner has rejected claims 32, 34, 36-38, 40-44 and 46 under 35 U.S.C. § 102(e) as being anticipated by Lorimer, US Patent No. 6,460,552 ("Lorimer") The basis of the rejection of claims 32, 37, and 42 are conclusive in nature and state that the entire document, especially figures 4, 7, 7a, and columns 7-12, teach a method as claimed. Applicant requests that the Examiner provide a clear specific citing in the reference for each claimed element.

Applicant respectfully asserts that amended claims 32, 37, and 42 are not anticipated by Lorimer under 35 USC 102(e). The issue is that to anticipate a claim, the reference must teach, either expressly or inherently, each and every limitation as set forth in the claim, in a single prior art reference. (MPEP 2131.)

Claim 42, as amended, states a method of cleaning or etching a wafer comprising: placing a wafer having a frontside and a backside on a support over a plate having a plurality of transducers formed thereon, wherein said wafer is horizontally supported and separated by a gap from said plate; flowing a liquid in said gap between said backside of said wafer and said support; dispensing chemicals or etchants onto said frontside of said wafer to form a chemical or etchant covered wafer while flowing said liquid in said gap; **after dispensing said chemicals or said etchant, and prior to dispensing DeIonized (DI) rinse water on said chemical or etchant covered wafer, dispensing a liquid or vapor having a lower surface tension than water onto said chemical or etchant covered wafer; and after applying said vapor or liquid, dispensing DI rinse water onto said frontside of said spinning wafer.**

In contrast, Lorimer fails to disclose or suggest dispensing **DI rinse water onto the frontside of the wafer. Further, Lorimer fails to disclose or suggest applying the lower surface tension vapor after the chemicals and before the DI rinse water.** As a matter of fact, Lorimer teaches away from claim 42, by disclosing

the IPA and water are **mixed together before** applied to the wafer, and thus fails to disclose or suggest **separate** steps. Therefore, Lorimer cannot anticipate claim 42, since it does not disclose or suggest each and every claimed limitation. Similarly, in light of the above remarks, claim 32 and 37 are also not anticipated by Lorimer.

In view of the above remarks, a specific discussion of the dependent claims is considered to be unnecessary. Therefore, Applicants' silence regarding any dependent claim is not to be interpreted as agreement with, or acquiescence to, the rejection of such claim or as waiving any argument regarding that claim.

Applicant, accordingly, respectfully requests withdrawal of the rejections of claims 32, 34, 36-38, 40-44 and 46 under 35 U.S.C. § 102(e) as being anticipated by Lorimer.

#### 35 U.S.C. § 103 Rejections

The Examiner has alternatively rejected claims 39 and 45 under 35 U.S.C. § 103(a) as being unpatentable over Lorimer in view of Chang et al., U.S. Patent No. 6,273,099 ("Chang"). In view of the above remarks, a specific discussion of the dependent claims is considered to be unnecessary. Therefore, Applicants' silence regarding any dependent claim is not to be interpreted as agreement with, or acquiescence to, the rejection of such claim or as waiving any argument regarding that claim. Nonetheless, in order expedite prosecution of the application, Chang discloses an immersion rinse with heated DI water for batch processing, followed by three or more rinses. Chang fails to disclose or suggest a single wafer process, nor the steps of applying a chemical, then the surface tension lowering fluid, and then the DI rinse, nor of the application of sonic energy to the backside of

the wafer. Therefore, Chang fails to remedy the deficiencies of Lorimer, Mertens, and EP 0905747.

Applicant, accordingly, respectfully requests withdrawal of the rejections of claims 39 and 45 under 35 U.S.C. § 103(a) as being unpatentable over Lorimer in view of Chang.

The Examiner has rejected claims 38 and 39 under 35 U.S.C. § 103(a) as being unpatentable over any one of Mertens or EP 0905747 in view of Chang. In view of the above remarks, a specific discussion of the dependent claims is considered to be unnecessary. Therefore, Applicants' silence regarding any dependent claim is not to be interpreted as agreement with, or acquiescence to, the rejection of such claim or as waiving any argument regarding that claim. Nonetheless, in order expedite prosecution of the application, Chang discloses an immersion rinse with heated DI water for batch processing, followed by three or more rinses. Chang fails to disclose or suggest a single wafer process, nor the steps of applying a chemical, then the surface tension lowering fluid, and then the DI rinse, nor of the application of sonic energy to the backside of the wafer. Therefore, Chang fails to remedy the deficiencies of Lorimer, Mertens, and EP 0905747.

Applicant, accordingly, respectfully requests withdrawal of the rejections of claims 38 and 39 under 35 U.S.C. § 103(a) as being unpatentable over any one of Mertens or EP 0905747 in view of Chang.

## CONCLUSION

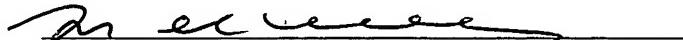
Applicant respectfully submits that the present application is in condition for allowance. If the Examiner believes a telephone conference would expedite or assist in the allowance of the present application, the Examiner is invited to call Michael A. Bernadicou at (408) 720-8300.

Pursuant to 37 C.F.R. 1.136(a)(3), applicant(s) hereby request and authorize the U.S. Patent and Trademark Office to (1) treat any concurrent or future reply that requires a petition for extension of time as incorporating a petition for extension of time for the appropriate length of time and (2) charge all required fees, including extension of time fees and fees under 37 C.F.R. 1.16 and 1.17, to Deposit Account No. 02-2666.

Respectfully submitted,

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Date: June 22 2006



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Application No.: 10/616,093  
Filing Date: July 8, 2003

AMAT Ref. No.: 4733 USA D01/TCG/TPG/OTHE  
- 12/12- BSTZ Ref. No.: 004887.P446D